



RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/512,019

DATE: 12/20/2002  
TIME: 11:07:58

Input Set : N:\CrF3\RULE60\09512019.raw  
Output Set: N:\CRF4\12202002\I512019.raw

1 <110> APPLICANT: HONG, GUOFAN  
2 HUANG, WEI-HUA  
3 <120> TITLE OF INVENTION: DNA POLYMERASE HAVING ABILITY TO REDUCE INNATE  
4 SELECTIVE DISCRIMINATION AGAINST FLUORESCENT  
5 DYE-LABELED DIDEOXYNUCLEOTIDES  
6 <130> FILE REFERENCE: hongsequencelisting  
7 <140> CURRENT APPLICATION NUMBER: 09/512,019  
8 <141> CURRENT FILING DATE: 2000-02-24  
10 <150> PRIOR APPLICATION NUMBER: US/09/157,397  
11 <151> PRIOR FILING DATE: 1998-09-21  
14 <150> PRIOR APPLICATION NUMBER: 08/544,643  
15 <151> PRIOR FILING DATE: 1995-10-18  
16 <150> PRIOR APPLICATION NUMBER: 08/642,684  
17 <151> PRIOR FILING DATE: 1996-05-03  
18 <160> NUMBER OF SEQ ID NOS: 11  
19 <170> SOFTWARE: PatentIn Ver. 2.0 - beta  
21 <210> SEQ ID NO: 1  
22 <211> LENGTH: 1764  
23 <212> TYPE: DNA  
24 <213> ORGANISM: Bacillus stearothermophilus  
25 <400> SEQUENCE: 1  
26 gccaagggg agaaaaccgct tgaggagatg gagttgccca tcgttgacgt cattaccgaa 60  
27 gagatgcctg ccgacaaggc agcgcttgc tggaggtga tggaaaaaaa ctaccacgat 120  
28 gccccgattg tcggaatcgc actagtgaac gagcatggc gatTTTTat gcGCCGAG 180  
29 accgcgctgg ctgattcgc atTTTtagca tggcttgcg atgaaacgaa gaaaaaaAGC 240  
30 atgttgacg ccaagcggc agtcgttgc ttAAAGTGGa aaggaaattga gcttcgcggc 300  
31 gtgcgcTTTg atttattgct cgctgcctat ttgctcaatc cggctcaaga tgccggcgat 360  
32 atcgctgcgg tggcgaaaat gaaacaatat gaagcgggtgc ggtcggatga agcggcttat 420  
33 ggcaaaggcg tcaagcggc gctgccggac gaacagacgc ttgctgagca tctcgTTcgc 480  
34 aaagcggcag ccattttggc gcttgcgcg ccgtttatgg acgatttgcg gaacaacgaa 540  
35 caagatcaat tattaacgaa gtttgcgc acgcgtggcgg cgatTTGGC tgaaatggaa 600  
36 ttcaactggg tgaacgttgc tacaAAAGCGG cttgaacaga tgggttgcg gctcgccgaa 660  
37 caactgcgtg ccatcgcgc ggcattttac gagctagccg gccaagagtt caacattaac 720  
38 tcaccaaaac agctcgaggt cattttatTT gaaaagctgc agctaccggt gctgaagaag 780  
39 acggAAAACAG gctattcgcac ttccggctgat gtgcttgaga agcttgcgc gcatcatgaa 840  
40 atcgctgaaa acattttgcA ttaccggcag cttggccaaAC tgcaatcaac gtatattgaa 900  
41 ggatttgtga aagtgtgcg ccctgatacc ggcaaAGTGC atacgatgtt caaccaAGCG 960  
42 ctgacgcaaa ctggggcggct cagctcgccc gagccgaact tgcaaaacat tccgattcgg 1020  
43 ctcaagagg ggcggAAAAT ccgccaAGCG ttctgtcccgt cagagccggc ctggctcatt 1080  
44 ttccggccg attactcaca aattgaatttgc cgcgtctcg cccatatcgc cgtatgacgac 1140  
45 aatctaatttgc aagcgttcca acgcgatttgc gatattcaca caaaaacggc gatggacatt 1200  
46 ttccagttga gcgaaagagga agtcacggcc aacatgcgc gccaggcAAA ggcggtaac 1260  
47 ttccggatcg tttacggaaat tagcgattac ggattggcgc aaaacttgaa cattacgcgc 1320

ENTERED

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/512,019

DATE: 12/20/2002

TIME: 11:07:58

Input Set : N:\Crf3\RULE60\09512019.raw

Output Set: N:\CRF4\12202002\I512019.raw

48 aaagaagctg ccgaatttat cgaacgttac ttgcgcagct ttccggcgaaagcagtat 1380  
 49 atggaaaaca tagtgcaga agcgaacacaaaggatatg tgacaacgcgttgcacatcg 1440  
 50 cggcgtatt tgcctgatatacaagccgc aatttcaacgtccgcgttt tgcatcg 1500  
 51 acggccatga acacgcacat tcaaggaagc gcccgtgaca ttataaaaaa agcgtatgatt 1560  
 52 gatttagcgg cacggctgaa agaagagcag ctcaaggctc gtctttgtc gcaagtgc 1620  
 53 gacgagctca ttttggaaagc gccaaaagag gaaattgagc gattatgtga gcttgtccg 1680  
 54 gaagtgtatgg agcaggccgt tacgctccgc gtgcgcgtga aagtcgacta ccattacggc 1740  
 55 ccaacatggatgatgccaa ataa 1764  
 57 <210> SEQ ID NO: 2  
 58 <211> LENGTH: 587  
 59 <212> TYPE: PRT  
 60 <213> ORGANISM: Bacillus stearothermophilus  
 61 <400> SEQUENCE: 2  
 62 Ala Glu Gly Glu Lys Pro Leu Glu Glu Met Glu Phe Ala Ile Val Asp  
 63 1 5 10 15  
 64 Val Ile Thr Glu Glu Met Leu Ala Asp Lys Ala Ala Leu Val Val Glu  
 65 20 25 30  
 66 Val Met Glu Glu Asn Tyr His Asp Ala Pro Ile Val Gly Ile Ala Leu  
 67 35 40 45  
 68 Val Asn Glu His Gly Arg Phe Phe Met Arg Pro Glu Thr Ala Leu Ala  
 69 50 55 60  
 70 Asp Ser Gln Phe Leu Ala Trp Leu Ala Asp Glu Thr Lys Lys Ser  
 71 65 70 75 80  
 72 Met Phe Asp Ala Lys Arg Ala Val Val Ala Leu Lys Trp Lys Gly Ile  
 73 85 90 .95  
 74 Glu Leu Arg Gly Val Ala Phe Asp Leu Leu Ala Ala Tyr Leu Leu  
 75 100 105 110  
 76 Asn Pro Ala Gln Asp Ala Gly Asp Ile Ala Ala Val Ala Lys Met Lys  
 77 115 120 125  
 78 Gln Tyr Glu Ala Val Arg Ser Asp Glu Ala Val Tyr Gly Lys Gly Val  
 79 130 135 140  
 80 Lys Arg Ser Leu Pro Asp Glu Gln Thr Leu Ala Glu His Leu Val Arg  
 81 145 150 155 160  
 82 Lys Ala Ala Ala Ile Trp Ala Leu Glu Gln Pro Phe Met Asp Asp Leu  
 83 165 170 175  
 84 Arg Asn Asn Glu Gln Asp Gln Leu Leu Thr Lys Leu Glu His Ala Leu  
 85 180 185 190  
 86 Ala Ala Ile Leu Ala Glu Met Glu Phe Thr Gly Val Asn Val Asp Thr  
 87 195 200 205  
 88 Lys Arg Leu Glu Gln Met Gly Ser Glu Leu Ala Glu Gln Leu Arg Ala  
 89 210 215 220  
 90 Ile Glu Gln Arg Ile Tyr Glu Leu Ala Gly Gln Glu Phe Asn Ile Asn  
 91 225 230 235 240  
 92 Ser Pro Lys Gln Leu Gly Val Ile Leu Phe Glu Lys Leu Gln Leu Pro  
 93 245 250 255  
 94 Val Leu Lys Lys Thr Lys Thr Gly Tyr Ser Thr Ser Ala Asp Val Leu  
 95 260 265 270  
 96 Glu Lys Leu Ala Pro His His Glu Ile Val Glu Asn Ile Leu His Tyr  
 97 275 280 285

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/512,019

DATE: 12/20/2002

TIME: 11:07:58

Input Set : N:\CrF3\RULE60\09512019.raw  
 Output Set: N:\CRF4\12202002\I512019.raw

```

98 Arg Gln Leu Gly Lys Leu Gln Ser Thr Tyr Ile Glu Gly Leu Leu Lys
99      290          295          300
100 Val Val Arg Pro Asp Thr Gly Lys Val His Thr Met Phe Asn Gln Ala
101      305          310          315          320
102 Leu Thr Gln Thr Gly Arg Leu Ser Ser Ala Glu Pro Asn Leu Gln Asn
103      325          330          335
104 Ile Pro Ile Arg Leu Glu Glu Gly Arg Lys Ile Arg Gln Ala Phe Val
105      340          345          350
106 Pro Ser Glu Pro Asp Trp Leu Ile Phe Ala Ala Asp Tyr Ser Gln Ile
107      355          360          365
108 Glu Leu Arg Val Leu Ala His Ile Ala Asp Asp Asp Asn Leu Ile Glu
109      370          375          380
110 Ala Phe Gln Arg Asp Leu Asp Ile His Thr Lys Thr Ala Met Asp Ile
111      385          390          395          400
112 Phe Gln Leu Ser Glu Glu Glu Val Thr Ala Asn Met Arg Arg Gln Ala
113      405          410          415
114 Lys Ala Val Asn Phe Gly Ile Val Tyr Gly Ile Ser Asp Tyr Gly Leu
115      420          425          430
116 Ala Gln Asn Leu Asn Ile Thr Arg Lys Glu Ala Ala Glu Phe Ile Glu
117      435          440          445
118 Arg Tyr Phe Ala Ser Phe Pro Gly Val Lys Gln Tyr Met Glu Asn Ile
119      450          455          460
120 Val Gln Glu Ala Lys Gln Lys Gly Tyr Val Thr Thr Leu Leu His Arg
121      465          470          475          480
122 Arg Arg Tyr Leu Pro Asp Ile Thr Ser Arg Asn Phe Asn Val Arg Ser
123      485          490          495
124 Phe Ala Glu Arg Thr Ala Met Asn Thr Pro Ile Gln Gly Ser Ala Ala
125      500          505          510
126 Asp Ile Ile Lys Lys Ala Met Ile Asp Leu Ala Ala Arg Leu Lys Glu
127      515          520          525
128 Glu Gln Leu Gln Ala Arg Leu Leu Leu Gln Val His Asp Glu Leu Ile
129      530          535          540
130 Leu Glu Ala Pro Lys Glu Glu Ile Glu Arg Leu Cys Glu Leu Val Pro
131      545          550          555          560
132 Glu Val Met Glu Gln Ala Val Thr Leu Arg Val Pro Leu Lys Val Asp
133      565          570          575
134 Tyr His Tyr Gly Pro Thr Trp Tyr Asp Ala Lys
135      580          585
137 <210> SEQ ID NO: 3
138 <211> LENGTH: 1764
139 <212> TYPE: DNA
140 <213> ORGANISM: Bacillus stearothermophilus
141 <400> SEQUENCE: 3
142 atggccgaag gggagaaaacc gcttgaggag atggagtttgc catcggttgc cgtcattacc 60
143 gaagagatgc ttgccgacaa ggcagcgctt gtcgttgagg tgatggaaaga aaactaccac 120
144 gatgccccga ttgtcgaaat cgcaactagtg aacgagcatg ggcgattttt tatgcgcccc 180
145 gagaccgcgc tggctgattc gcaattttta gcatggctt ccgatgaaac gaagaaaaaa 240
146 acatgttttgc acgccaagcg ggcagtcgtt gccttaaatggaaat tgagcttcgc 300
147 ggcgtcgcct ttgatttttgc tatttgctca atccggctca agatgccggc 360

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/512,019

DATE: 12/20/2002

TIME: 11:07:58

Input Set : N:\CrF3\RULE60\09512019.raw  
 Output Set: N:\CRF4\12202002\I512019.raw

```

148 gatatcgctg cggcggcgaa aatgaaaaca tatgaagccg tgcggctgga tgaaggcgtc 420
149 tatggcaaag gcgtcaagcg gtcgctgccc gacgaacaga cgcttgcgtga gcatctcggt 480
150 cgccaaaggcg cagccatttg ggccgtttag cagccgttta tggacgattt gcggaaacaac 540
151 gaacaagatc aattattaac gaagctttag cacgcgttgc cggcgattt ggctgaaatg 600
152 gaattcactg gggtaaacgt gtatacaaaag cggcttgaac agatgggtt ggagctcgcc 660
153 gaacaactgc gtgcacatcga gcagcgcatt tacgagcttag ccggccaaga gttcaacatt 720
154 aactcaccaa aacagctcg agtcattttt tttgaaaaggc tgcaagctacc ggtgctgaag 780
155 aagacgaaaa caggcatttc gacttcggct gatgtgcattt agaagcttgc gccgcattcat 840
156 gaaatcgtcg aaaacattttt gcattaccgc cagcttggca aactgcaatc aacgtatatt 900
157 gaaggattgt tgaaagttgt ggcgcctgtat accggcaaaag tgcatatcgat gttcaaccaa 960
158 gcgcgtacgc aaactggcg gtcagctcg gccgagccga acttgcaaaa cattccgatt 1020
159 cggacccac tggggcgaa aatccgcacaa gcgtcgtcc cgctcaggcc 990 ggactggctc 1080
160 attttcgccc ccgattactc acaaatttga ttgcgcgtcc tcgcgcattat cgccgatgac 1140
161 gacaatctaa ttgaagcgtt ccaacgcgtat ttggatattt acacaaaaac ggcgatggac 1200
162 attttccagt tgagcgaaga ggaagtcacg gccaacatgc gccgcgcaggc aaaggccgtt 1260
163 aactacggta tcgttacgg aattacgtat tacgattttt cgcaaaaactt gaacattacg 1320
164 cgccaaagaag ctgccaattt tatcgaacgt tacttcgcca gcttccggg cgtaaaggcag 1380
165 tatatggaaa acatagtgc aagaagcgaaa cagaaaggat atgtgacaac gctgttgcatt 1440
166 cggcgcgcgtt atttgcctga tattacaagc gcgttgcgttcc acgtccgcgtt ttttgcagag 1500
167 cggacggcca tgaacacgcc aattcaagga agcgcgcgtt acattattaa aaaagcgatg 1560
168 attgattttag cggcacggct gaaagaagag cagttcagg ctcgtctttt gctgcaagtg 1620
169 catgacgagc tcattttggaa agcgcacaaa gagaaattt agcgattatg tgagcttgcatt 1680
170 cccgaagtga tggagcaggc ctttgcgttcc cgcgtgcgc tgaaagtcga ctaccattac 1740
171 ggcacat ggtatgatgc caaa 1764

173 <210> SEQ ID NO: 4
174 <211> LENGTH: 588
175 <212> TYPE: PRT
176 <213> ORGANISM: Bacillus stearothermophilus
177 <400> SEQUENCE: 4
178 Met Ala Glu Gly Glu Lys Pro Leu Glu Glu Met Glu Phe Ala Ile Val
179 1 5 10 15
180 Asp Val Ile Thr Glu Glu Met Leu Ala Asp Lys Ala Ala Leu Val Val
181 20 25 30
182 Glu Val Met Glu Glu Asn Tyr His Asp Ala Pro Ile Val Gly Ile Ala
183 35 40 45
184 Leu Val Asn Glu His Gly Arg Phe Phe Met Arg Pro Glu Thr Ala Leu
185 50 55 60
186 Ala Asp Ser Gln Phe Leu Ala Trp Leu Ala Asp Glu Thr Lys Lys
187 65 70 75 80
188 Ser Met Phe Asp Ala Lys Arg Ala Val Val Ala Leu Lys Trp Lys Gly
189 85 90 95
190 Ile Glu Leu Arg Gly Val Ala Phe Asp Leu Leu Ala Ala Tyr Leu
191 100 105 110
192 Leu Asn Pro Ala Gln Asp Ala Gly Asp Ile Ala Ala Val Ala Lys Met
193 115 120 125
194 Lys Gln Tyr Glu Ala Val Arg Ser Asp Glu Ala Val Tyr Gly Lys Gly
195 130 135 140
196 Val Lys Arg Ser Leu Pro Asp Glu Gln Thr Leu Ala Glu His Leu Val
197 145 150 155 160

```

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/512,019**

**DATE: 12/20/2002**  
**TIME: 11:07:58**

**Input Set : N:\Crf3\RULE60\09512019.raw**  
**Output Set: N:\CRF4\12202002\I512019.raw**

198	Arg Lys Ala Ala Ala Ile Trp Ala Leu Glu Gln Pro Phe Met Asp Asp			
199	165	170	175	
200	Leu Arg Asn Asn Glu Gln Asp Gln Leu Leu Thr Lys Leu Glu His Ala			
201	180	185	190	
202	Leu Ala Ala Ile Leu Ala Glu Met Glu Phe Thr Gly Val Asn Val Asp			
203	195	200	205	
204	Thr Lys Arg Leu Glu Gln Met Gly Ser Glu Leu Ala Glu Gln Leu Arg			
205	210	215	220	
206	Ala Ile Glu Gln Arg Ile Tyr Glu Leu Ala Gly Gln Glu Phe Asn Ile			
207	225	230	235	240
208	Asn Ser Pro Lys Gln Leu Gly Val Ile Leu Phe Glu Lys Leu Gln Leu			
209	245	250	255	
210	Pro Val Leu Lys Lys Thr Lys Thr Gly Tyr Ser Thr Ser Ala Asp Val			
211	260	265	270	
212	Leu Glu Lys Leu Ala Pro His His Glu Ile Val Glu Asn Ile Leu His			
213	275	280	285	
214	Tyr Arg Gln Leu Gly Lys Leu Gln Ser Thr Tyr Ile Glu Gly Leu Leu			
215	290	295	300	
216	Lys Val Val Arg Pro Asp Thr Gly Lys Val His Thr Met Phe Asn Gln			
217	305	310	315	320
218	Ala Leu Thr Gln Thr Gly Arg Leu Ser Ser Ala Glu Pro Asn Leu Gln			
219	325	330	335	
220	Asn Ile Pro Ile Arg Thr Pro Leu Gly Arg Lys Ile Arg Gln Ala Phe			
221	340	345	350	
222	Val Pro Ser Glu Pro Asp Trp Leu Ile Phe Ala Ala Asp Tyr Ser Gln			
223	355	360	365	
224	Ile Glu Leu Arg Val Leu Ala His Ile Ala Asp Asp Asp Asn Leu Ile			
225	370	375	380	
226	Glu Ala Phe Gln Arg Asp Leu Asp Ile His Thr Lys Thr Ala Met Asp			
227	385	390	395	400
228	Ile Phe Gln Leu Ser Glu Glu Val Thr Ala Asn Met Arg Arg Gln			
229	405	410	415	
230	Ala Lys Ala Val Asn Tyr Gly Ile Val Tyr Gly Ile Ser Asp Tyr Gly			
231	420	425	430	
232	Leu Ala Gln Asn Leu Asn Ile Thr Arg Lys Glu Ala Ala Glu Phe Ile			
233	435	440	445	
234	Glu Arg Tyr Phe Ala Ser Phe Pro Gly Val Lys Gln Tyr Met Glu Asn			
235	450	455	460	
236	Ile Val Gln Glu Ala Lys Gln Lys Gly Tyr Val Thr Thr Leu Leu His			
237	465	470	475	480
238	Arg Arg Arg Tyr Leu Pro Asp Ile Thr Ser Arg Asn Phe Asn Val Arg			
239	485	490	495	
240	Ser Phe Ala Glu Arg Thr Ala Met Asn Thr Pro Ile Gln Gly Ser Ala			
241	500	505	510	
242	Ala Asp Ile Ile Lys Lys Ala Met Ile Asp Leu Ala Ala Arg Leu Lys			
243	515	520	525	
244	Glu Glu Gln Leu Gln Ala Arg Leu Leu Leu Gln Val His Asp Glu Leu			
245	530	535	540	
246	Ile Leu Glu Ala Pro Lys Glu Glu Ile Glu Arg Leu Cys Glu Leu Val			

**VERIFICATION SUMMARY**  
PATENT APPLICATION: US/09/512,019

DATE: 12/20/2002  
TIME: 11:07:59

Input Set : N:\Crf3\RULE60\09512019.raw  
Output Set: N:\CRF4\12202002\I512019.raw